# Transuranic Waste Disposal Facility Performance Assessment Results

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The Waste Isolation Pilot Plant (WIPP), located in southeastern New Mexico, has been developed by the U.S. Department of Energy (DOE) for the geologic (deep underground) disposal of transuranic (TRU) waste. Containment of TRU waste at the WIPP is regulated by the U.S. Environmental Protection Agency (EPA). The DOE demonstrates compliance with the containment requirements by means of performance assessment (PA) calculations. WIPP PA calculations estimate the probability and consequence of potential radionuclide releases from the repository to the accessible environment for a regulatory period of 10,000 years after facility closure. The models are maintained and updated with new information as part of a recertification process that occurs at five-year intervals.

The DOE conducted a PA for the 2009 Compliance Recertification Application (CRA-2009) which is called the CRA-2009 PA, and incorporated modeling, parameter, and assumptions changes since the last recertification PA. The EPA has requested that additional information, which was received between the commencement of the CRA-2009 PA (December 2007) and the submittal of the CRA-2009 (March 2009), be included in an additional PA calculation, referred to as the CRA-2009 Performance Assessment Baseline Calculation (PABC-2009).

The PABC-2009 demonstrates that the WIPP continues to comply with the containment requirements. Containment requirements are stringent and state that the DOE must demonstrate with a reasonable expectation that the probabilities of cumulative radionuclide releases from the disposal system during the 10,000 years following closure will fall below specified limits. The PA analyses supporting this determination must be quantitative and consider uncertainties caused by all significant processes and events that may affect the disposal system, including future inadvertent human intrusion into the repository.

The PABC-2009 demonstrates that the results continue to lie entirely below the specified limits and the WIPP therefore continues to be in compliance with the containment requirements. No releases are predicted to occur at the ground surface in the absence of human intrusion. A sensitivity analysis of the results shows that the total releases are dominated by radionuclide releases that could occur on the surface during an inadvertent penetration of the repository by a future drilling operation.

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